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AN ESSAY  
ON  
SOME OF THE EFFECTS  
OF  
CONTUSIONS  
OF THE HEAD.

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*BY WILLIAM H. SIMMONS,*  
*OF CHARLESTON, SOUTH CAROLINA.*

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AN  
INAUGURAL ESSAY  
FOR  
THE DEGREE  
OF  
DOCTOR OF MEDICINE,  
SUBMITTED  
TO THE EXAMINATION  
OF THE  
REV. JOHN ANDREWS, D. D. PROVOST,  
(PRO TEMPORE)  
THE  
TRUSTEES AND MEDICAL PROFESSORS  
OF THE  
*UNIVERSITY OF PENNSYLVANIA,*

ON THE TWENTY-FIRST DAY OF APRIL, 1800 .





TO  
DOCTOR MATTHEW IRVINE,  
OF CHARLESTON, SOUTH CAROLINA,  
THIS ESSAY  
*IS GRATEFULLY INSCRIBED,*

BY  
HIS FRIEND AND PUPIL,

THE AUTHOR.



## INAUGURAL ESSAY, &c.

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**B**Y means of the vascular connection which exists, between the dura mater and the outer integuments of the skull ; contusions of the head, are in all cases liable, ultimately to affect the brain, and of course endanger life.

As practitioners are not always aware of the danger attending such injuries, I shall in the ensuing pages endeavour to attach to them their proper importance ; and with this view I shall describe the formidable and even fatal affections of the brain, which they often induce, when neglected and left to take their course.

I will first give a history of the effects of those contusions, in which no wound of the scalp has been inflicted.

In some of these cases the patient suffers no inconvenience from the accident, further than a transient giddiness or confusion of the senses, until several days or weeks from its first occurrence.

At the end, however, of one or the other of these periods, he begins to experience pain at the place of injury, together with a sense of fulness or tightness over the whole head: these affections are attended with languor, diminution of strength, and dejection of spirits. To these soon succeed vertigo, nausea, and retching, with febrile symptoms, such as a quick and hard pulse, a hot skin, anxiety and restlessness—his sleep is disturbed and unrefreshing, whether natural or procured by opiates. A few days after this attack the part stricken generally swells, and becomes puffy and yielding, but

it does not, however, assume a large size, or spread to any great extent.

If it be now opened, the pericranium will be found altered from its natural to a dark hue, and separated or easily separable from the skull; there will also be found between it and the latter a dark-coloured ichor. The bone itself, if the pericranium has been entirely detached from it, will be found altered in its colour.

From this period the symptoms become more violent and advance more rapidly; the fever increases, the pulse becomes quicker and harder, the skin hotter, the sleep more disturbed, and the restlessness more distressing; rigors or shivering fits now occur, which soon augment in frequency and severity; to these lastly succeed stupor and coma.

The shivering fits which have been mentioned, are particularly symptomatic of the

formation of matter, which, by its pressure on the brain, produces the same effects as pressure from extravasated serum or depressed pieces of bone, viz. paralysis of one side, dilatation of the pupils, convulsions and death.

When we advert to the anatomical fact, before noticed, (of the vascular intercourse which subsists between the meninges of the brain and outer integuments of the skull) we can readily understand how some apparently slight injuries of the head may end thus fatally.

To corroborate, however, the account I have given, and further to illustrate the subject, I will now quote one of the many cases given by Mr. Pott, in which a slight contusion terminated in death.

*Case of Contusion without Wound.*

“ A BOY about nine years old, playing under an empty cart, whose shafts were supported by a stick, was knocked down by the fall of one of them upon his head. The child was stunned by the blow for a minute or two, but soon became sensible. When he came home, there being a small swelling where the blow had been stricken, his mother applied a bit of linen rag, wet with vinegar; and as he appeared to be perfectly well in a day or two, he was sent to school.

“ Five days passed over before he made any complaint: on the sixth, he said that his head ached; he brought up his breakfast, and could eat no dinner; but in the evening seemed to be pretty well again. On the seventh, he complained still more of his head, and said that he was very sick and very cold. He was put to bed, but got

no rest. As he had not had either small-pox or measles, he was brought home, and treated as if one of these diseases was to follow.

“ Three days more passed, and no eruption appeared; the fever continued much the same; he was frequently inclined to vomit, and what little sleep he got, was extremely disturbed. He was, by the order of a physician, let blood, had a blister applied to his back, and took some of the common febrifuge medicines. On the 12th day from that of the accident, he was seized with a shivering, which held him more than a quarter of an hour; after which his pain became more acute, and his fever higher. Some blood was drawn from his temples by leeches, and he was ordered some other medicines. On the 13th at noon, he had another rigor, still more severe than the former, and of longer duration; and that evening he became lightheaded. By some means or other, the accident



of the blow was now mentioned to the person who attended him, and who desired that a surgeon might look at his head. I found about a third part of the left parietal bone covered by a flattish tumor, containing a fluid.

“ From the appearance of this swelling, from the date of the accident, the attack, violence, and duration of the symptoms, I made no scruple to give my opinion, that the blow had been the sole cause of all the child’s illness ; that I suspected the skull under the tumor to be bare, if not injured ; that I did also believe, that matter was forming, or formed under the skull ; and that if the last conjecture was true, the only chance the child could have of preservation, must be from the operation of the trephine.

“ The scalp was divided, and the skull found as I suspected, that is, perfectly bare, and altered from a natural colour : I would

therefore have perforated it immediately ; but as the bone was not broken, the parents objected to such operation ; and the physical gentleman, who had the care of the boy, not having seen much business of this kind, and not rightly comprehending the true nature of the case, joined in opinion with the parents, that such operation was not necessary. It was therefore not performed, and the whole was committed to internal remedies.

“ The fever increased, and the child’s strength decreased in proportion : he continued delirious for three days more, then sank into a state of insensibility, and died.

“ Having been contradicted, and (as I thought) somewhat improperly over-ruled in the management of the patient while alive, I was the more importunate to get leave to examine him when dead.

“ All that part of the dura mater which had been covered by the left parietal, and part of the temporal bone, was detached from the said bones, and covered with a considerable quantity of matter. Under the middle part of the former bone, the dura mater was discoloured and sloughy; this discoloured part I opened with a lancet, and let out near a spoonful of matter, which matter lay between the meninges. All the rest of the contents of the head were unaffected.

“ When first I saw this child, all chance of relief from evacuation was over, and his symptoms plainly indicated mischief under the skull. Nothing therefore but perforation could give him any kind of chance.

“ I do not say that this operation would have saved him ; I am much inclined to believe that it would not ; but still it was the only thing that could with propriety have been done for him ; and therefore it ought

to have been done, instead of wasting time with the use of internal remedies, from which no possible good could be expected or derived."

In the case of a wound, it will be easily conceived that the danger of inflammation must be still greater. If after a wound has suppurated, thrown out granulations, and appeared to be getting well, the patient becomes restless, hot, and febrile, and complains of a pain in his head, danger ought always to be apprehended. The edges of the wound soon afterwards lose their healthy colour, retract and become pale and flabby ; instead of matter they discharge a thin, discoloured gleet ; the dressings no longer come away easily, but stick to every part of it ; the pericranium separates from the bone, and all the symptoms of inflammation of the brain and its membranes occur, as in the former case.

To render these symptoms more familiar, and the propriety of the modes of cure more evident, I will now give a case from Mr. Pott, of contusion accompanied with a wound.

*Case of Contusion with a Wound.*

“ A LUNATICK threw himself from a window, two stories high, and in his fall, struck his head first against a sign-iron, and then against a slated pent-house.

“ He was taken up senseless, with three wounds on his head; one just above the right temple, and two on the top of his head: the wounds were but small, nor was the pericranium divided in any of them. He remained stupid above twelve hours; but being in that space of time let blood freely twice, he recovered his senses, but shewed no signs of a right understanding.

He passed two days and nights in the utmost disorder and disturbance. He was confined in a strait waistcoat, and kept two people constantly employed in holding him : at last, by repeated phlebotomy, and taking a large quantity of opium, he fell asleep, slept nearly twelve hours, and then awoke perfectly tranquil, and perfectly rational. By the sixth day from that of the fall, his wounds were in perfect good order, and seemed to heal without any trouble ; the man was in very good health and temper, and perfectly rational and intelligent. He would have been permitted by his friends to have gone out a little way into the country ; but lest there should be any latent mischief, I advised him to keep quiet a little longer, and to live with great caution ; which advice was followed. On the tenth day from that of the accident, he lost his appetite, looked dull and languid, refused food and company, complained that his head ached, and said that he had not slept. So little time had passed since he had

been disordered in his mind, that from his aspect and manner, I suspected a return of his lunacy. I let him blood again, directed that he might be kept low, and desired his brother, who was an apothecary, to give him an opiate at going to bed. The next day, the eleventh, he said that his head-ach had again prevented him from sleeping all night, and that he felt as if a cord was bound tight about his brain: his skin was too hot, his pulse was too hard and too frequent; his urine small in quantity, and high coloured: and the aspect of the wounds in the scalp, by no means so favourable as they had hitherto been: one of them looked more spongy and pale than the others. I examined with my probe and found the scull bare for some space under it. With his own and brother's consent, I removed all the scalp covering the bare cranium, and found it to be considerably altered from a natural colour. I bled him again, and desired that he might take freely of the salt of



wormwood and lemon juice until the next day. That night he had a smart rigor, and the next morning, finding him worse and more disturbed, I made a perforation of the skull. The dura mater under this perforation was dull, and had apparently matter on its surface, though small in quantity. He was dressed lightly, and as his pulse would very well bear it, eight ounces more of blood were drawn off. The following morning, the thirteenth, he had a still more severe shivering, his pain in his head was greater, his fever higher, and the whole sore so crude, that the lint was with difficulty removed from it. I applied the trephine again, and found the same appearance, viz. a dull discoloured dura mater, and a small quantity of matter. That evening he had another rigor, and was the following day manifestly worse. Convinced, from the symptoms, of his hazard, and firmly believing that matter was collected in such manner as not to be discharged by the two openings already



made, I ventured to make a third, and that a large one ; which produced an immediate and large discharge of pus. In seven or eight hours I saw him again, and found him easier and more tranquil. He had slept nearly an hour, and his pulse did not feel so rapid, nor so hard. That evening he got more sleep, and the following morning answered every question asked, in such manner, as to convince every body that he was certainly better. To shorten the relation, I shall only add that the discharge continued large for several days, and then gradually decreased: all his symptoms by degrees also disappeared, and in no great length of time, by proper care, he got very well.

“ When this patient was attacked with his first symptoms, I did not suspect the true cause. His want of sleep, his seeming anxiety, his taciturnity, and great unwillingness to answer any question, seemed to me to bespeak a return of his maniacal

disorder. Upon this supposition I gave him the opiate, hoping, that if I could procure sleep he might be better. But when I saw the altered appearance of the wound, and found that the pericranium had quitted its adhesion to the scull, I was no longer in doubt, that whatever else might concur to disorder him, yet all his complaints were fairly deducible from the effects of his fall. And I apprehend he owed the preservation of his life to the treatment he underwent, in consequence of such supposition."

The prophylactic or preventive means to be employed in cases of contusion are very simple. They are bloodletting both general and local, the bowels should be kept open, and the part affected, if there be a wound, covered with an emollient poultice ; if there be no wound or only a slight bruise, the common application of a mixture of spirits and vinegar, or of a solution of cerussa acetata in water are sufficiently proper.

These remedies, together with an observance of low diet, and abstinence from all kinds of labour or fatigue, are in most instances sufficient to prevent bad consequences.

But if from the neglect of the above mentioned prophylactic means, symptoms of inflammation of the brain commence; the febrile symptoms are to be moderated by general bleeding, which must be copious where they run high. The bowels should be kept constantly open, and the skin preserved soft by mild sudorifics; blood should also be drawn from the head by cupping and scarifying, or by leeches; after which a large blister should be applied over it. When the injured part of the scalp is swelled and puffy, the tumour should be opened in order to examine the state of the bone underneath: if this is found changed in colour and bare of its periosteum, or if the latter membrane is easily detached from it, the greatest

probability will exist that mischief is going on within the cranium. When instead of a simple contusion the scalp is wounded, no such tumor is seen; and however favourable the appearance of the sore may have been for several days, soon after inflammation has taken place in the brain or its membranes, it will exhibit the unhealthy aspect above described. Under these circumstances, Mr. Pott advises the bone to be perforated with the trepan; in order to give exit to any pus that may be formed; and I believe no practitioner should hesitate in performing the operation, as it appears to be the only means of affording relief.

On perforating the cranium, the surgeon is sometimes disappointed by finding the dura mater without marks of disease, and yet the symptoms of pressure still continuing urgent. In this dilemma, Mr. Bell advises the bold measure of cutting into the membranes of the brain. As the patient

must perish if left to his disease, it is certainly proper to attempt every thing for his relief.

As the abscess must be seated near the place of contusion, it will be proper to make the incision into the first portion of the dura mater brought into view by the trepan; the operation is best performed by a few strokes of the lancet. The point of a pair of curved scissars is then to be introduced, and the opening made as large as necessary.

If the abscess does not appear on the division of the dura mater, the pia mater is to be opened with equal freedom. The abscess when reached discharges very easily. If it is now kept clean, and covered with light dressings, the patient will certainly be afforded some chances of recovery.

Mr. Bell tells us, the dura mater may sometimes be found sloughy, and tending to gangrene. The hope of a favourable issue must then be very slender; but as instances have occurred of patients recovering, even under such circumstances, the surgeon is still warranted, and even called upon to pursue a curative plan.

All however that can be done is to keep the sores clean, to discharge any matter that may form, and to employ light and easy dressings.

If there is a tendency to inflammation, antiphlogistic means are to be used; if on the contrary the system is low and feeble, an invigorating plan must be adopted.

I have thus endeavoured to inculcate the propriety of always considering contusions of the scalp in a serious point of view. The neglect they in general meet

with in modern practice, is the only excuse I have to offer, for attempting to tread in the steps of the justly celebrated Mr. Pott, who long ago recommended them to the attention they deserve.

*F I N I S.*





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